REMARKS

Claims 1-40 have been amended to more clearly define the invention and to place the claims in accordance with U.S. patent practice. The preferred embodiments recited in claims 15, 17, 22, 32, and 36 have been deleted and embodied in new claims 41-45. Additionally, the dependencies of claims 5, 8, 10, 14, 15, 19, 20, 23, 24, 32, 33, and 37-40 have been amended to avoid the occurrence of an improper multiple claim dependency. Claim 25 has been amended to more clearly define the invention described by that claim.

The specification has been amended to correct a minor typographical error and to include a bulk powder in the list of pharmaceutical samples that may be analyzed by the claimed method. Support for the amendment is found in claims 15 and 32 as originally filed.

Upon entry of this Preliminary Amendment, claims 1-45 are pending. Applicants respectfully submit that claims 1-45 are directed to patentable subject matter. Accordingly, Applicants request allowance of the claims.

Authorization is hereby given to charge any fee in connection with this communication to Deposit Account No. 23-1703.

Dated: March 13, 2002

Respectfully submitted,

Andrew Fessak

Andrew Fessak
Reg. No. 48,528
Agent for Applicants

Customer No. 07470
Direct Line: (212) 819-8437

MAR-13-2002 WED 06:33 PM ????????????????????? FAX NO. ++++++++++++++++++++ P. 07

Specification- Version with markings to show changes made

--According to a first aspect of the invention, there is provided a method for use in quantitative analysis of a turbid [,] pharmaceutical sample, in particular, a pharmaceutical tablet, capsule, bulk powder, or [of] an equivalent pharmaceutical dose.--

Claims 1-40- Version with markings to show changes made

1. A method for use in quantitative analysis of a turbid, pharmaceutical sample [(24)], comprising the following steps:

[-] a) providing an excitation beam [(20)] of radiation;

[-] b) irradiating a [pharmaceutical,] turbid pharmaceutical sample [(24)] with the [said] excitation beam [(20)] of radiation; and

[-] c) detecting the intensity of emitted radiation [(30)] from the sample [(24)] as a function of both the wavelength of the emitted radiation and the photon propagation time through the [said] sample [(24)].

2. The [A] method as claimed in claim 1, wherein the [said] emitted radiation comprises transmitted radiation [(30)] from the [said] sample [(24)].

3. The [A] method as claimed in claim 1, wherein the [said] emitted radiation comprises diffusely reflected radiation [(30')] from the [said] sample [(24)].

4. The [A] method as claimed in claim 1, wherein the [said] emitted radiation comprises transmitted radiation and [(30) as well as] diffusely reflected radiation [(20')] from the [said] sample [(24)].

5. The [A] method as claimed in claim 1 [any of claims 1-4], wherein the [said] excitation beam [(20)] is a pulsed excitation beam presenting a pulse train of excitation pulses [(P)], and wherein

MAR-13-2002 WED 06:33 PM FAX NO. P. 08

the step of detecting the intensity as a function of the photon propagation time is performed in time synchronism with the [said] excitation pulses [(P)].

6. The [A] method as claimed in claim 5, wherein the [said] excitation pulses [(P)] have a pulse length shorter than the photon propagation time.

7. The [A] method as claimed in claim 6, wherein the [said] excitation pulses [(P)] have a pulse length selected short enough in relation to the photon propagation time such that any undesired interference between intensity measurements relating to two subsequent excitation pulses is prevented.

8. The [A] method as claimed in claim 1 [any of claims 1-4], wherein the [said] excitation beam [(20)] is an intensity modulated excitation beam.

9. The [A] method as claimed in claim 8, wherein the step of detecting the intensity as a function of the photon propagation time is performed by comparing the phase of the intensity modulated excitation beam [(20)] with the phase of the emitted radiation [(30)] from the sample [(24)].

10. The [A] method as claimed in claim 8 [or 9], wherein the step of detecting the intensity as a function of the photon propagation time is performed by comparing the modulation depth of the intensity modulated excitation beam [(20)] with the modulation depth of the emitted radiation [(30)] from the sample [(24)].

11. The [A] method as claimed in any one of claims 1-10, wherein the [said] detection of the intensity of emitted radiation [(30)] from the sample [(24)] as a function of time is performed with [by] the use of a time-resolved detection unit.

12. The [A] method as claimed in any one of claims 1-10, wherein the [said] detection of the intensity of emitted radiation [(30)] from the sample [(24)] as a function of time is performed with [by] the use of a phase-resolved detection unit.

MAR-13-2002 WED 06:33 PM ????????????????????? FAX NO. ++++++++++++++++++++ P. 09

13. The [A] method as claimed in any one of claims 1-10, wherein the [said] detection of the intensity of emitted radiation [(30)] from the sample [(24)] as a function of time is performed with [by] the use of a time-gated system.

14. The [A] method as claimed in any one of claims 1-10 [of the preceding claims], wherein the [said] step of detecting the intensity further comprises [includes] a spatial-resolved detection of the [said] intensity.

15. The [A] method as claimed in any one of claims 1-10 [of the preceding claims], wherein the [said pharmaceutical,] turbid pharmaceutical sample is a solid sample [(24), in particular a tablet, a capsule, a bulk powder or an equivalent pharmaceutical dose].

16. The [A] method as claimed in claim 15, wherein the [said] step of irradiating the sample with the [said] excitation beam comprises the step of irradiating a first surface of the solid sample [(24)].

17. The [A] method as claimed in claim 15, wherein the [said] step of irradiating the sample with the [said] excitation beam [(20)] comprises the step of irradiating a first surface and a second surface of the solid sample [(24), especially oppositely-directed surfaces].

18. The [A] method as claimed in claim 17, wherein the first surface and the second surface of the solid sample are irradiated at different points in time.

19. The [A] method as claimed in any one of claims 1-10 [1-14], wherein [said pharmaceutical,] the turbid pharmaceutical sample is a dispersion.

20. The [A] method as claimed in any one of claims 1-10 [of the preceding claims], wherein the excitation beam [(20)] comprises infrared radiation.

21. The [A] method as claimed in claim 20, wherein the infrared radiation is [in the] near infrared radiation (NIR).

MAR-13-2002 WED 06:33 PM ????????????????????? FAX NO. ++++++++++++++++++++ P. 10

22. The [A] method as claimed in claim 21, wherein the radiation has a frequency in the range corresponding to wavelengths [of] from about 700 to about 1700 nm [, particularly from 700 to 1300 nm].

23. The [A] method as claimed in any one of claims 1-10 [of the preceding claims], wherein the excitation beam [(20)] comprises visible light.

24. The [A] method as claimed in one of claims 1-10 [any of the preceding claims], wherein the excitation beam [(20)] comprises UV radiation.

25. (Amended) A method for use in an analysis of a turbid sample [(24)] comprising directing [wherein] an excitation radiation beam [is directed] onto the [said] sample [(24)] and measuring [wherein] the intensity of emitted radiation [(30)] from the thus radiated sample [(24) is measured] as a function of both wavelength of the emitted radiation [(30)] and photon propagation time through the [said] sample [(24)].

26. An apparatus for use in quantitative analysis of a turbid pharmaceutical sample [(24)], comprising:
[-] a) means [(10, 12, 16)] for generating an excitation beam [(20)] of radiation;
[-] b) means for positioning a [pharmaceutical,] turbid pharmaceutical sample [(24)],
[-] c) means for focusing the [said] excitation beam [(20)] onto the [said] sample [(24)];
[-] d) means [(32, 34, 36)] for detecting the intensity of emitted radiation [(30)] from the sample [(24)] as a function of both the wavelength of the emitted radiation and the photon propagation time through the [said] sample [(24)].

27. The [An] apparatus as claimed in claim 26, wherein the [said] means for detecting comprises a time-resolved detection unit [(34)].

28. The [An] apparatus as claimed in claim 27, wherein the [said] time-resolved detection unit comprises a streak camera [(34)].

MAR-13-2002 WED 06:33 PM ???????????????????? FAX NO. ++++++++++++++++++++ P. 11

29. The [An] apparatus as claimed in claim 26, wherein the [said] means for detecting comprises a phase-resolved detection unit.

30. The [An] apparatus as claimed in claim 26, wherein the [said] means for detecting comprises a time-gated system.

31. The [An] apparatus as claimed in any of claims 26-30, further comprising means for performing a spatial-resolved detection of the [said] intensity of the emitted radiation.

32. The [An] apparatus as claimed in any one of claims 26-30 [31], wherein the turbid [said] pharmaceutical [, turbid] sample is a solid sample [(24), in particular a tablet, a capsule, a bulk powder or an equivalent pharmaceutical dose].

33. The [A] apparatus as claimed in any one of claims 26-30 [31], wherein the [said pharmaceutical,] turbid pharmaceutical sample is a dispersion.

34. The [An] apparatus as claimed in claim 26, wherein the excitation beam [(20)] comprises infrared radiation.

35. The [An] apparatus as claimed in claim 34, wherein the infrared radiation is [in the] near infrared radiation (NIR).

36. The [An] apparatus as claimed in claim 26, wherein the radiation has a frequency in the range corresponding to wavelengths [of] from about 700 to about 1700 nm [, particularly from 700 to 1300 nm].

37. The [An] apparatus as claimed in any one of claims 26-30 [36], wherein the excitation beam [(20)] comprises visible light.

38. The [An] apparatus as claimed in any one of claims 26-30 [37], wherein the excitation beam [(20)] comprises UV radiation.

MAR-13-2002 WED 06:33 PM ŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷŷ FAX NO. ++++++++++++++++++++ P. 12

39. The [An] apparatus as claimed in any one of claims 26-30 [38], wherein the [said] means [(10, 12, 16)] for generating the excitation beam comprises one or more diode lasers.

40. The [An] apparatus as claimed in any one of claims 26-30 [38], wherein the [said] means [(10, 12, 16)] for generating the excitation beam comprises an intensity modulated lamp.

MAR-13-2002 WED 06:33 PM ????????????????????? FAX NO. ++++++++++++++++++++ P. 13